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Federal Communications Commission

FCC 98-221

DISPATCHED

Federal Communications Commission

Washington, D.C. 20554

In the Matter of)
)
1998 Biennial Regulatory Review --)
Modifications to Signal Power)
Limitations Contained in Part 68) CC Docket No. 98-163
of the Commission's Rules)
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)
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NOTICE OF PROPOSED RULEMAKING

Adopted: September 8, 1998

Released: September 16, 1998

Comment Date: 30 days from date of publication in the Federal Register

Reply Comment Date: 45 days from date of publication in the Federal Register

By the Commission: Commissioner Furchtgott-Roth issuing a separate statement.

I. INTRODUCTION

1. In this proceeding, we seek to make it possible for customers to download data from the Internet more quickly. Our proposal, if adopted, could somewhat improve the transmission rates experienced by persons using high speed digital information products, such as 56 kilobits per second (kbps) modems, to download data from the Internet. Currently, our rules limiting the amount of signal power that can be transmitted over telephone lines prohibit such products from operating at their full potential. We believe these signal power limitations can be relaxed without causing interference or other technical problems. Therefore, we propose to relax the signal power limitations contained in Part 68 of our rules and explore the benefits and harms, if any, that may result from this change. This change would allow Pulse Code Modulation (PCM) modems, which are used by Internet Service Providers (ISPs) and other online information service providers to transmit data to consumers, to operate at higher signal powers. This modification will allow ISPs and other online information service providers to transmit data at moderately higher speeds to end-users.

2. This proposal stems from our review of Part 68 of the Commission's rules pursuant to section 11 of the Communications Act of 1934, as amended.¹ Section 11 requires that, in every even-numbered year, the Commission (1) review all of its regulations applicable to providers of telecommunications service; (2) determine which regulations are no longer necessary as the result of meaningful economic competition; and (3) repeal or modify those unnecessary regulations.² On February 5, 1998, the Commission released a list of 31 proceedings to be initiated as part of the 1998 biennial regulatory review.³ That list is the result of a comprehensive internal review of all existing FCC regulations supplemented by informal comments from the public.⁴

II. DISCUSSION

3. Theoretically, PCM modems operating over the Public Switched Telecommunications Network (PSTN) are capable of data transmission rates of up to 56 kbps.⁵ The signal power limitations found in section 68.308 of our rules appear to limit the transmission rate of PCM modems to 54 kbps. This is due to the way PCM is decoded within the PSTN. Digital signals transmitted by a PCM modem may be converted⁶ into analog signals by decoders within the network that translate the digital signals into analog signals. Decoders operate by converting each discrete eight-bit digital input signal, or "word,"

¹ 47 U.S.C. § 161.

² *Id.*

³ *FCC Staff Proposes 31 Proceedings as Part of 1998 Biennial Regulatory Review*, FCC News (Fed. Comm. Comm'n, Washington, DC), Feb. 5, 1998, Doc. 81708, Rep. GN 98-1, General Action.

⁴ *Id.*

⁵ In practice, modern data transmission products, such as PCM modems, adjust their transmission rates in response to network and line conditions. The actual performance of this type of modem varies considerably depending on available network capacity, line noise, the quality of the subscriber loop and the end to end network connection, among other factors. We also note that the local loop radio frequency bandwidth and the conversion from analog to digital format typically limits the transmission rate at which analog modems can send data to about 28 kbps, although speeds up to 33.6 kbps may be achieved. The signal power limitations addressed in this *Notice* do not apply to terminal equipment generating analog signals that are not encoded in digital form. See 47 C.F.R. § 68.308(h).

⁶ Conversion is necessary only if the network is not completely digital.

into a specific analog output signal strength, or voltage.⁷ PCM technique utilizes 256 decoder output voltages, one for each of the 256 possible eight-bit input combinations, or "words." Each voltage corresponds with a specific signal power level.

4. Part 68 of the Commission's rules sets technical parameters for the signals generated by terminal equipment attached to the network to ensure that those signals do not physically damage or impair the operation of that network.⁸ The potential harms include electrical hazards to telephone company personnel and equipment, degradation of telecommunications services to users of the network, and malfunctioning of billing equipment.⁹ Part 68 was enacted more than two decades ago to facilitate competition in the telecommunications equipment industry and to expand the options available to telecommunications customers for connection of customer premises equipment (CPE) and wiring to the telephone network.¹⁰

5. The technical parameters of Part 68 fall into three broad categories: signal

⁷ Generally, only seven of the eight bits in a word are available to carry information, with the eighth budgeted for network use. Thus, a 64 kbps channel is theoretically capable of transmitting 8,000 eight-bit words per second, but is practically limited to a maximum information transmission speed of 56 kbps.

⁸ See 47 C.F.R. § 63.308.

⁹ Network harm includes service degradation occurring to persons other than the user of the terminal equipment and that user's calling or called party. 47 C.F.R. § 68.3. The Order establishing the Part 68 program identified four areas of potential harm that may arise as a consequence of permitting the uncontrolled direct connection of telecommunications equipment to the telecommunications network: (1) hazardous voltages, (2) excessive signal power levels, (3) excessive longitudinal imbalance, and (4) improper network control signalling. In the Matter of Proposals for New and Revised Classes of Interstate and Foreign Message Toll Telephone Service (MTS) and Wide Area Telephone Service (WATS), *First Report and Order*, 56 F.C.C. 2d 593, 602 (1975) ("First Report and Order"). In addition, Part 68 contains rules designed to ensure that persons with hearing aids are afforded reasonable access to the telephone network. See 47 C.F.R. § 68.1. See also 47 U.S.C. § 225 (requiring the provision of telecommunications relay services by common carriers) and § 710 (requiring hearing aid compatibility for telephones).

¹⁰ See First Report and Order, 56 F.C.C. 2d at 593 *et seq.*; see also *North Carolina Utilities Commission et al., v. Federal Communications Commission*, 552 F.2d 1036 (4th Cir., 1977). For an early history of Part 68, see Proposals for New or Revised Classes of Interstate and Foreign Message Toll Telephone Service ("MTS") and Wide Area Telephone Service ("WATS"); Revision of Part 68 of the Commission's Rules to Specify Standard Plugs and Jacks for the Connection of Telephone Equipment of the Nationwide Telephone Network; and Amendment of Part 68 of the Commission's Rules ("Telephone Equipment Registration") to Specify Standards for and Means of Connection of Telephone Equipment to Lamp and/or Annunciator Functions of Systems, *Memorandum Opinion and Order*, 70 F.C.C. 2d 1800 (1979).

power limitations,¹¹ transverse balance requirements,¹² and billing protection provisions.¹³ The signal power limitations of section 68.308 are designed to protect the network from crosstalk and other interference caused by excessive signal power.¹⁴ In particular, sections 68.308(h)(1)(iv) and 68.308(h)(2)(v) of our rules provide that the maximum equivalent power of encoded analog signals for other than live voice may not exceed -12 dBm¹⁵ measured over a three-second interval.¹⁶ This limitation corresponds to standard industry practice in 1975, when this section was incorporated into our rules, and was considered a conservative measure

¹¹ 47 C.F.R. § 68.308. This section imposes restrictions on the average power presented by CPE to the network in order to protect against interference among analog carriers in adjacent binder groups, and unacceptable noise and interference caused by the introduction of excessive voltage into the network, and, contingent upon the specific service involved, pulse amplitudes.

¹² 47 C.F.R. § 68.310. Section 68.310 of the rules specifies minimum metallic to transverse voltage ratios for terminal equipment under specified test conditions. Transverse balance limitations control the conversion of metallic signals into longitudinal signals. Uncontrolled conversion can result in interference with adjacent channels sharing the same transmission path. This interference is generally referred to as crosstalk.

¹³ 47 C.F.R. § 68.314. Billing protection provisions include call duration, on-hook signal, loop current, signalling interference, and similar requirements for voice and data equipment connected to the PSTN.

¹⁴ Crosstalk occurs when high powered signals are transmitted by wires in close proximity to each other and may be manifested as line noise and third party conversations.

¹⁵ "dBm" refers to decibels above one milliwatt; "-dBm" refers to decibels below one milliwatt. A decibel (dB) is ten (10) multiplied by the log of the ratio of two numbers, which in this context, are the process of a transmitted signal and a standard signal source. A difference of 3 dB corresponds to a doubling or halving of the power in a telephony circuit. The corresponding figure for doubling or halving voltage is 6 dB. See *Newton's Telecom Dictionary*, 11th ed., Flatiron Publishing, Inc., (1996) at dBm, decibel.

¹⁶ Section 68.308(h)(1)(iv) applies to terminal equipment connected to substrate services and containing an analog-to-digital converter or generating digital signals that are intended for eventual conversion into voiceband analog signals. Section 68.308(h)(2)(v) applies to terminal equipment connected to 1.544 Mbps digital service or to Integrated Service Digital Network Primary Rate Access service and containing an analog-to-digital converter or generating digital signals that are intended for eventual conversion into voiceband analog signals. Both sections 68.308(h)(iv) and (v) specify that the maximum equivalent power of encoded analog signals for other than live voice as derived by a zero level decoder test configuration shall not exceed -12 dBm when averaged over any 3-second time interval. 47 C.F.R. § 68.308(h)(1)(iv) and 68.308(h)(2)(v). See also First Report and Order, 56 F.C.C. 2d at 607.

of the maximum signal power that could be introduced into the network without causing harm to network facilities or degradation of service.¹⁷

6. Sections 68.308(h)(1)(iv) and 68.308(h)(2)(v) of the Commission's rules limit the average signal power generated in response to the encoded analog content of output from digital terminal equipment, such as modems, connected to the network.¹⁸ Average signal power levels are limited by controlling the associated average voltage levels generated by the decoder. The voltage levels generated by the decoder are controlled by limiting the range of eight-bit words sent to the decoder. Avoiding the use of words that correspond to the highest voltage levels prevents the use of the highest signal power levels, effecting a lower average signal power. As a result of the prescribed range of acceptable signal strength levels, PCM modems can currently achieve data rates of only 53 or 54 kbps.

7. A signal power limitation of -6 dBm may be sufficient to broaden the range of acceptable signal strengths to enable PCM modems to approach their theoretical maximum speed. In light of the widespread use of digital rather than FDM transmission facilities, as well as recent analysis considering standard crosstalk models and industry-standard performance requirements for network equipment, relaxing the -12 dBm signal power limit in Part 68 to a transmit level of -6 dBm for PCM modems is likely to enable higher digital transmission rates for modem users without harmful effects on the network or its users.¹⁹ This increase may enable the use of additional combinations of codes in digital subrate channel signals intended for eventual conversion to voiceband signals, thereby eliminating one factor currently preventing PCM modems from operating at higher speeds.²⁰

8. Accordingly, we propose to increase the power limit on encoded analog content specified in sections 68.308(h)(1)(iv) and 68.308(h)(2)(v) from -12 dBm to -6 dBm.²¹ We

¹⁷ One justification for the signal power limit was to avoid overloading analog frequency division multiplex (FDM) systems. FDM systems, however, have been largely replaced by digital interoffice facilities. In FDM systems, a high-powered signal on one channel could cause intermodulation distortion, affecting many other channels. See ITU - Telecommunications Standardization Sector, Study Group 16 - Question 23, Analysis of -12 dBm Power Limit, PCM '97-029 (1997) (*Analysis of -12 dBm Power Limit*), and see TIA/EIA Bulletin TSB31-A, "Part 68 Rationale and Measurement Guidelines" (Feb. 1992).

¹⁸ See *supra* note 15 and accompanying text.

¹⁹ *Analysis of -12 dBm Power Limit* at 4.

²⁰ These signals are commonly known as "voiceband data." See Bellcore Notes on the Network, SR-2275, Issue 3, Dec. 1997.

²¹ 47 C.F.R. §§ 68.308(h)(1)(iv) and 68.308(h)(2)(v).

seek comment on the effect of this proposed rule change. In particular, we seek comment on whether this rule change will improve the performance of PCM modems, whether increasing the signal power risks harm to the network, whether a signal power limit other than -6 dBm but greater than -12 dBm, or another modification to Part 68 of our rules, would be more beneficial and entail less risk. We request that all comments be accompanied by a thorough analysis of the likely effect of the proposed rule change, both the positive, in terms of increased transmission rates and other tangible benefits, and the negative, in terms of additional signal interference, crosstalk, or other network detriment.²² In particular, we seek comment on the potential detrimental effects of the proposed power increase on advanced communications services, such as asymmetric digital subscriber line (ADSL), and other digital subscriber line (*e.g.*, xDSL) services.²³ We seek comment on whether the proposed rule change will allow consumers who access the Internet or other online services to experience faster transmission rates. We also seek comment identifying other factors limiting transmission rates, such as available network capacity, line noise, and the quality of the local loop, and discussing how these factors may be affected by increased signal power limitations. Finally, we seek comment on what rule modifications would be necessary to implement the revised signal power limitation.

9. We recognize that the modifications proposed in this Notice may produce only moderate improvements in the actual performance of 56 kbps PCM modems. We propose these modifications, however, because we desire to remove impediments to data transmission over the PSTN where we find that the public interest will be served by doing so. A tentative list of provisions that may be affected by this proceeding is provided in Appendix A of this *Notice*. Other parts of the Commission's rules may be modified as well. We ask parties to identify other provisions of Part 68 that may be affected by this proposed rule change.

²² We note the following specific potential harmful effects of a signal power transmit level in excess of -12 dBm: (1) crosstalk introduced into the loops carrying other services in the same binder group; (2) crosstalk introduced in central office jumper wires in close proximity; (3) crosstalk between central office switch ports in close proximity; and (4) the effect of high average output levels on central office switch line card and digital facility channel unit components. *See Analysis of -12 dBm Power Limit*. As indicated, however, we also seek comment on other potential harmful effects.

²³ We certainly want to avoid making minor improvements for PCM modems at the expense of far more advanced consumer technologies.

III. PROCEDURAL MATTERS

10. Ex Parte Presentations This Notice of Proposed Rulemaking is a permit-but-disclose notice and comment rulemaking. *Ex Parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in the Commission's rules.²⁴

11. Initial Regulatory Flexibility Act Analysis An Initial Regulatory Flexibility Analysis is contained in Appendix C.

12. Comment Filing Procedure Pursuant to the applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's rules, 47 C.F.R. sections 1.415 and 1.419, interested parties may file comments on or before 30 days from date of publication in the Federal Register, and reply comments on or before 45 days from date of publication in the Federal Register. To file formally in this proceeding, interested parties must file an original and eight copies of all comments, reply comments, and supporting documents with the reference number "CC Docket No. 98-163" on each document with the Office of the Secretary, Federal Communications Commission, Washington, D.C. 20554. In addition to filing comments with the Secretary, an electronic and a paper copy of any comments, reply comments, and supporting documents should be submitted to Al McCloud, Federal Communications Commission, Common Carrier Bureau, Network Services Division, Room 235, 2000 M Street, N.W., Washington, D.C. 20554 or via the Internet to amcccloud@fcc.gov. Electronic submissions must be in WordPerfect 5.1 format. Comments and reply comments will be available for public inspection during regular business hours in the FCC reference center, Room 239, Federal Communications Commission, 1919 M Street, N.W., Washington, D.C. 20554. Copies of comments and reply comments are available through the Commission's duplicating contractor: International Transcript Service, Inc. (ITS, Inc.), 2100 M Street, N.W., Suite 140, Washington, D.C. 20037 (202/857-3800).

13. Further Information For further information concerning this rulemaking proceeding, contact Vincent Paladini, (202) 418-2320, Common Carrier Bureau, Federal Communications Commission, Washington, D.C. 20554. Further information may also be obtained by sending an electronic mail message to vpaladin@fcc.gov.

²⁴ See generally 47 C.F.R. §§ 1.1202, 1.1203, and 1.1206(a).

IV. ORDERING CLAUSES

14. ACCORDINGLY, IT IS ORDERED, pursuant to the authority contained in Sections 1, 4(i) and (j), 11, 201-205, 218, 220, 256, and 403 of the communications Act as amended, 47 U.S.C. sections 151, 154(i), 151(j), 161, 201-205 and 218, 220, 256, and 403 that NOTICE IS HEREBY GIVEN of the proposed changes to Part 68 contained herein and COMMENT IS INVITED on the proposed modifications to those rules that are identified herein.

15. IT IS FURTHER ORDERED that comments shall be filed on or before 30 days from date of publication of this Notice of Proposed Rulemaking in the Federal Register, and reply comments on or before 45 days from date of publication of this Notice of Proposed Rulemaking in the Federal Register.

16. IT IS FURTHER ORDERED that the Office of Managing Director SHALL SEND a copy of this Notice of Proposed Rulemaking, including the Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION



Magalie Roman Salas
Secretary

APPENDIX A

The following is a representative list of items, contained within sections 68.308, 68.310, and 68.314 of the Commission's rules, that may be affected by this proceeding.

1. Voice band metallic, non-network control, signal power (68.308(b)(1))
2. Voice band metallic, network control, signal power (68.308(b)(2)(i))
3. Limits on power of encoded analog signals for Public Switched Digital Service (PSDS) (Types I, II and III) (68.308(b)(2)(iii))
4. DC conditions for through-transmission (68.308(b)(3)(i))
5. Equipment connections for through-transmission (68.308(b)(3)(ii))
6. Voice band signal power for data equipment (68.308(b)(4))
7. Voice band signal power for protective circuitry (68.308(b)(4))
8. Limits on amplification in through-transmission path (68.308(b)(5)(A-F))
9. Limits on signal power, general (68.308(b)(5)(G))
10. Limits on energy in specific frequency bands (68.308(b)(5)(H))
11. Limits on insertion loss for specific frequency bands (68.308(b)(5)(H)(ii))
12. Return loss limits for two-wire interfaces (68.308(b)(6)(i))
13. Return loss limits for four-wire interfaces (68.308(b)(6)(ii))
14. Transducer loss limits for four-wire interfaces (68.308(b)(6)(ii))
15. DC conditions for OPS ports (68.308(b)(7)(ii))
16. Constraints on code words for Mu-encoded subrate channels in connections to 1.544 Mbps digital circuits (68.308(b)(7)(ii))
17. Limits on non-network control signal power in the band 3995-4005 Hz (68.308(c))
18. Limits on loss in through-transmission paths in the band 600-4000 Hz (68.308(c)(2))
19. Limits on longitudinal voltage at frequencies between .1 and 4000 Hz (68.308(d)) under conditions provided in 68.308(g)
20. Limits on Non-LADC metallic voltage at frequencies between 4 kHz and 270 kHz and between 270 kHz and 6 mHz (68.308(e)(1)(i-ii)) under conditions provided in 68.308(g)
21. Limits on Non-LADC longitudinal rms voltage at frequencies between 4 kHz and 270 kHz (68.308(e)(2)(i-ii)) under conditions provided in 68.308(g)
22. Limits for LADC impedance (68.308(f)) under conditions provided in 68.308(g)
23. Limits for LADC metallic rms voltage at frequencies below 4000 Hz (68.308(f)(1)) under conditions provided in 68.308(g)
24. Limits for LADC metallic rms voltage at frequencies between 4 kHz and 270 kHz (68.308(f)(2)(i-ii)) under conditions provided in 68.308(g)
25. Limits for LADC metallic rms voltage at frequencies above 270 kHz (68.308(f)(2)) under conditions provided in 68.308(g)

26. Limits for LADC metallic peak voltage at frequencies between 4 kHz and 6 MHz (68.308(f)(1)(iv)) under conditions provided in 68.308(g)
27. Limits for LADC longitudinal rms voltage at frequencies below 4000 Hz (68.308(f)(3)(i)) under conditions provided in 68.308(g)
28. Limits for LADC longitudinal rms voltage at frequencies between 4 kHz and 270 kHz (68.308(f)(3)(ii)) under conditions provided in 68.308(g)
29. Limits for LADC longitudinal rms voltage at frequencies between 270 kHz and 6 MHz (68.308(f)(3)(ii)) under conditions provided in 68.308(g)
30. Requirements for pulse repetition rates for 2.4, 4.8, 9.6 or 56.0 kbps signals (68.308(h)(1)(i))
31. Requirements of pulse template and test conditions for 2.4, 4.8, 9.6 or 56.0 kbps signals (68.308(h)(1)(ii))
32. Average power limitations and test conditions for 2.4, 4.8, 9.6 or 56.0 kbps signals (68.308(h)(1)(iii))
33. Average power limitations and test conditions for encoded analog content of digital signals (68.308(h)(1)(iv))
34. Upper and lower bounds on pulse repetition rates of digital signals from equipment connected to 1.544 Mbps and ISDN PRA services (68.308(h)(2)(i))
35. Requirements of pulse template and test conditions for digital signals from equipment connected to 1.544 Mbps and ISDN PRA services (68.308(h)(2)(ii))
36. Upper and lower bound signal voltage from equipment connected to 1.544 Mbps and ISDN PRA services (68.308(h)(2)(iii))
37. Upper and lower bound signal power from equipment connected to 1.544 Mbps and ISDN PRA services (68.308(h)(2)(iv))
38. Average power limitations and test conditions for encoded analog content of digital signals from equipment connected to 1.544 Mbps and ISDN PRA services (68.308(h)(2)(v))
39. Upper and lower bounds on pulse repetition rates of digital signals from equipment connected to PSDS Types II and III services (68.308(h)(3))
40. Requirements of pulse template and test conditions for digital signals from equipment connected to PSDS Types II and III services (68.308(h)(3)(i))
41. Average power limitations and test conditions for encoded analog content of digital signals from equipment connected to ISDN BRA services (68.308(h)(4))
42. Transverse balance limitations of 68.310(a) for one-port terminal equipment for 2-wire non-data applications with loop start, ringdown, inband signaling or voiceband metallic channels under conditions of 68.310(a) as modified by 68.310(b)
43. Transverse balance limitations of 68.310(a) for one-port terminal equipment for 2-wire data applications with loop start, ringdown, inband signaling or voiceband metallic channels under conditions of 68.310(a) as modified by 68.310(c)

44. Transverse balance limitations of 68.310(a) for one-port equipment for ground-start and reverse-battery applications under conditions of 68.310(a) as modified by 68.310(d)
45. Transverse balance limitations of 68.310(a) for protective circuitry for 2-wire applications with loop start, ringdown, inband signaling or voiceband metallic channels under conditions of 68.310(a) as modified by 68.310(e)
46. Transverse balance limitations of 68.310(a) for protective circuitry for ground-start and reverse-battery applications under conditions of 68.310(a) as modified by 68.310(e)
47. Transverse balance limitations of 68.310(a) for protective circuitry for ground-start and reverse-battery applications under conditions of 68.310(a) as modified by 68.310(f)
48. Transverse balance limitations of 68.310(a) for multi-port equipment for loop-start applications under conditions of 68.310(a) as modified by 68.310(g)
49. Transverse balance limitations of 68.310(a) for multi-port equipment for ground start and reverse-battery applications under conditions of 68.310(a) as modified by 68.310(h)
50. Transverse balance limitations of 68.310(a) for terminal equipment and registered protective circuitry for 4-wire network ports under conditions of 68.310(a) as modified by 68.310(i)
51. Transverse balance limitations of 68.310(a) for protective circuitry for loop-start, ground-start, reverse-battery, ringdown, inband signaling or voiceband metallic channel applications under conditions of 68.310(a) as modified by 68.310(i)(1)
52. Transverse balance limitations of 68.310(a) for multiport equipment for loop start, ground start, and reverse battery, ringdown, inband signaling, or voiceband metallic channel applications under conditions of 68.310(a) as modified by 68.310(i)(2)
53. Transverse balance limitations of 68.310(a) for PBX equipment (or similar systems) with Class B or Class C off-premises interfaces under conditions of 68.310(a) as modified by 68.310(j)
54. Transverse balance limitations of 68.310(a) for Ringing type Z equipment for loop-start applications under conditions of 68.310(a) as modified by 68.310(k)
55. Transverse balance limitations of figure 68.310(k) for registered terminal equipment connected to digital services
56. Constraints of 68.314(d)(1) on signal power in the 2450 to 2750 Hz band
57. Constraints of 68.314(d)(2) on the energy in the 2450 to 2750 Hz band in digital signals with encoded analog content

APPENDIX B

PROPOSED RULE CHANGES

Title 47 of the Code of Federal Regulations Part 68 is proposed to be amended as follows:

Part 68 - CONNECTION OF TERMINAL EQUIPMENT TO THE TELEPHONE NETWORK

1. The authority citation for Part 68 continues to read as follows:

AUTHORITY: Sections 1, 4, 5, 201-5, 208, 215, 218, 226, 227, 303, 313, 314, 403, 404, 410, 522 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154, 155, 201-5, 208, 215, 218, 226, 227, 303, 313, 314, 403, 404, 410, 522.

2. Section 68.308 is amended as follows:

Section 68.308 Signal Power Limitations.

* * * * *

(h) *Interference limitations for transmission of bipolar signals over digital services*

* * * * *

(1) *Limitations on Terminal Equipment Connecting to Subrate Digital Services*

* * * * *

(iv) *Encoded analog content.* * * * * *

The maximum equivalent power of encoded analog signals for other than live voice as derived by a zero level decoder test configuration shall not exceed -6 dBm when averaged over any 3-second time interval.

* * * * *

(2) *Limitations on Terminal Equipment Connecting to 1.544 Mbps Digital Services and ISDN PRA Services*

* * * * *

(v) *Encoded analog content.* * * * * *

The maximum equivalent power of encoded analog signals for other than live voice that are not intended for network control signaling as derived by a zero level decoder test configuration shall not exceed -6 dBm when averaged over any 3-second time interval.

* * * * *

APPENDIX C

INITIAL REGULATORY FLEXIBILITY ANALYSIS

1. As required by the Regulatory Flexibility Act (RFA),¹ the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the expected significant economic impact on small entities by the policies and rules proposed in this Notice of Proposed Rulemaking. Written public comments are requested in this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the Notice of Proposed Rulemaking provided above in paragraph 14. The Commission will send a copy of the Notice of Proposed Rulemaking, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration. *See* 5 U.S.C. § 603(a). In addition, the Notice of Proposed Rulemaking and IRFA (or summaries thereof) will be published in the Federal Register. *See id.*

A. Need for, and Objectives of, the Proposed Rules

2. Part 68 governs the terms and conditions under which customer provided terminal equipment may be connected to the telephone network. This rulemaking is initiated to obtain comment on whether the Commission should adopt amendments to Part 68 of the Commission's rules to optimize the signal power restrictions and other sections of Part 68 that govern the requirements for connection of customer premises equipment to the public switched telecommunications network. As a result of the proposed amendments to Part 68, manufacturers will be able to market products that will enable consumers to maximize their utilization of available bandwidth when transmitting digital information via the public switched telecommunications network, while not adversely affecting the quality of other services provided over the network.

B. Legal Basis

3. The proposed action is authorized under Sections 151, 154(i), 151(j), 201-205 and 218, 220, 226, 227, 255, 256, and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 151(j), 201-205 and 218, 220, 226, 227, 255, 256, and 403.

C. Description and Estimate of the Number of Small Entities To Which the Proposed Rules Will Apply

¹ *See* 5 U.S.C. § 603. The RFA *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract with America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

4. The RFA directs the Commission to provide a description of and, where feasible, an estimate of the number of small entities that will be affected by the proposed rules. The RFA defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small business concern" under section 3 of the Small Business Act.² A small business concern is one that (1) is independently owned and operated; (2) is not dominant in its field of operation, and (3) satisfies any additional criteria established by the SBA.³ SBA has defined a small business for Standard Industrial Classification (SIC) category 4813 (Telephone Communications, Except Radiotelephone) to be a small entity when it has no more than 1,500 employees.⁴

5. Consistent with our prior practice, we here exclude small incumbent local exchange carriers (LECs) from the definition of "small entity" and "small business concern." While such a company may have 1,500 or fewer employees and thus fall within the SBA's definition of a small telecommunications entity, such companies are either dominant in their field or operation or are not independently owner and operated. Out of an abundance of caution, however, for regulatory flexibility analysis purposes, we will consider small incumbent LECs within this present analysis and use the term "small incumbent LECs" to refer to any incumbent LEC that arguably might be defined by the SBA as a small business concern.

6. Manufacturers of Telecommunications Equipment. The Commission has not developed a definition for small manufacturers of telecommunications terminal equipment. The closest applicable definition under SBA rules is for manufacturers of telephone and telegraph apparatus (SIC 3661) which defines a small manufacturer as one having 1,000 or fewer employees.⁵ According to 1992 Census Bureau data, there were 479 such manufacturers, and of those, 436 had 999 or fewer employees, and 7 had between 1,000 and 1,499 employees.⁶ Consequently, we estimate that there are fewer than 443 small manufacturers of telecommunications terminal equipment that may be affected by the decision and rules proposed in this Notice of Proposed Rulemaking.

² See 5 U.S.C. § 601(3) (incorporating by reference the definition of "small business concern" in 5 U.S.C. § 632).

³ 15 U.S.C. § 632.

⁴ See 13 C.F.R. § 121.201, SIC 3661.

⁵ *Id.*

⁶ 1992 Economic Census, Industry and Employment Size of Firm, Table 1D (data prepared by U.S. Census Bureau under contract to the U.S. Small Business Administration).

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements.

7. There are no reporting or recordkeeping requirements. Manufacturers will be required to test terminal equipment to a revised technical standard.

E. Steps Taken to Minimize Significant Economic Impact on Small Entities, and Significant Alternatives Considered

8. There is no significant economic impact on Small Entities. Compliance with the current technical standard will result in compliance with the revised technical standard.

F. Federal Rules that Overlap, Duplicate, or Conflict with These Rules

9. None.

Separate Statement of Commissioner Harold W. Furchtgott-Roth**In re: Notice of Proposed Rulemaking****1998 Biennial Regulatory Review -- Modifications to Signal Power Limitations Contained in Part 68 of the Commission's Rules**

I support adoption of this Notice of Proposed Rulemaking. In my view, any reduction of unnecessary regulatory burdens is beneficial. To that extent, this item is good and I am all for it. This item should not, however, be mistaken for complete compliance with Section 11 of the Communications Act.

As I have explained previously, the FCC is not planning to "review all regulations issued under this Act . . . that apply to the operations or activities of any provider of telecommunications service," as required under Subsection 11(a) in 1998 (emphasis added). *See generally 1998 Biennial Regulatory Review -- Review of Computer III and ONA Safeguards and Requirements*, 13 FCC Rcd 6040 (released Jan. 30, 1998). Nor has the Commission issued general principles to guide our "public interest" analysis and decision-making process across the wide range of FCC regulations.

In one important respect, however, the FCC's current efforts are more ambitious and difficult than I believe are required by the Communications Act. Subsection 11(a) -- "Biennial Review" -- requires only that the Commission "determine whether any such regulation is no longer necessary in the public interest" (emphasis added). It is pursuant to Subsection 11(b) -- "Effect of Determination" -- that regulations determined to be no longer in the public interest must be repealed or modified. Thus, the repeal or modification of our rules, which requires notice and comment rule making proceedings, need not be accomplished during the year of the biennial review. Yet the Commission plans to complete roughly thirty such proceedings this year.

I encourage parties to participate in these thirty rule making proceedings. I also suggest that parties submit to the Commission -- either informally or as a formal filing -- specific suggestions of rules we might determine this year to be no longer necessary in the public interest as well as ideas for a thorough review of all our rules pursuant to Subsection 11(a).

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